

REMARKS:

Applicant has carefully studied the nonfinal Examiner's Action and all references cited therein. The amendment appearing above and these explanatory remarks are believed to be fully responsive to the Action. Accordingly, this important patent application is now believed to be in condition for allowance.

Applicant responds to the outstanding Action by centered headings that correspond to the centered headings employed by the Office, to ensure full response on the merits to each finding of the Office.

Claim Rejections – 35 U.S.C. § 103

1. Applicant acknowledges the quotation of 35 U.S.C § 103(a).

Claims 1-2, 9, 12-13 and 17-18 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Reynolds (U.S. 2002/0197474).

The Office states that Reynolds teaches a method of making a CNT/polymer composite by (a) dispersing CNT in a mixture of polyamic acid and 4,4'-oxydianiline (ODA), (b) adding 3,3', 4,4'-benzophenonetetracarboxylic anhydride in N,N'-dimethylformamide (BTDA), and (c) stir the mixture mechanically under vacuum until no longer exothermic. The polyamic-acid/CNT was slurried/dissolved in N-methylpyrrolidone or dimethylacetamide, extruded, rinsed with water followed by isopropanol wash, and heat treated at 300° C forming polyamide/CNT composite. (Page 5, paragraph 0061-0062).

The Applicant respectfully disagrees with the finding of the Office. N,N'-dimethylformamide is a well known solvent used in SWNT/PMMA dispersions. As such, the process described by Reynolds for making a CNT/polymer composite teaches polymerization in the presence of the solvent by mechanical mixing.

By contrast, the present invention discloses and claims polymerization of a monomer in the presence of dispersed nanotubes to form a composite and subsequent dissolution of the composite in a solvent. As stated in the specification as filed at paragraphs [0057] – [0059], the

process steps of the present invention provide for polymerization of the monomer in the presence of the nanotubes to form a composite, followed by the dissolution of the composite in a solvent. Accordingly, polymerization of the monomer is accomplished in the presence of the dispersed nanotubes and without a solvent. As stated in paragraph [0062] of the specification as filed, through reproducible experiments, it has been proven that through a combination of dispersion, in situ polymerization and dissolution, thin films with varying degrees of transparency can be achieved.

As such, Reynolds does not describe the process steps as claimed by the present invention of polymerizing the monomer in the presence of the dispersed nanotubes to form a composite and then dissolving the resulting composite in a solvent.

For the reasons cited above, Applicant believes that independent claim 1 is patentable over Reynolds (U.S. 2002/0197474) and is believed to be in condition for allowance.

Claims 2, 9, 12-13 and 17-18 are dependent upon claim 1, and are therefore allowable as a matter of law.

2. Claims 1-2, 4-5, 8-9, 12-13, 17-18 and 23-24 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Jia et al. (Mat. Sci. Eng. 1999, A271, 395-400).

The Office states that Jia et al. teaches adding 1 wt% CNT and 0.12 wt% AIBN to methylmethacrylate (MMA), mixing the contents and polymerizing to form the composite. More specifically, the Office states that Jia teaches mixing MMX, AIBN and treated CNT into toluene, stirring for 1.5 hrs at 358K and coating on a film of polyethylene and volatilizing toluene forming the sheet.

The Applicant respectfully disagrees with the finding of the Office. Toluene is a well known solvent used in SWNT/PMMA dispersions. As such, the process described by Jia et al. for making a CNT/polymer composite teaches polymerization in the presence of the solvent by stirring.

By contrast, the present invention discloses and claims polymerization of a monomer in the presence of dispersed nanotubes to form a composite and subsequent dissolution of the composite in a solvent. As stated in the specification as filed at paragraphs [0057] – [0059], the process steps of the present invention provide for polymerization of the monomer in the presence of the nanotubes to form a composite, followed by the dissolution of the composite in a solvent. Accordingly, polymerization of the monomer is accomplished in the presence of the dispersed nanotubes and without the use of a solvent. As stated in paragraph [0062] of the specification as filed, through reproducible experiments, it has been proven that through a combination of dispersion, in situ polymerization and dissolution, thin films with varying degrees of transparency can be achieved.

As such, Jia et al. does not describe the process steps as claimed by the present invention of polymerizing the monomer in the presence of the dispersed nanotubes to form a composite and then dissolving the resulting composite in a solvent.

For the reasons cited above, Applicant believes that independent claim 1 is patentable over Jia et al. (Mat. Sci. Eng. 1999, A271, 395-400) and is believed to be in condition for allowance.

Claims 2, 4-5, 8-9, 12-13 and 17-18 are dependent upon claim 1, and are therefore allowable as a matter of law.

With regard to claims 23-24, the Office states that Jia et al. teaches CNT/PMMS sheet/films whose composition is similar to that by the applicants, and similar compositions are expected to have similar properties. The Office further states that when a reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim.

Claims 23 and 24 have been amended, and claim 25 has been added to more clearly describe that which the applicant regards as the invention. Accordingly, claims 23-25 are believed to be in condition for allowance.

3. Claims 3, 7 and 14-16 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Reynolds (U.S. 2002/0197474) in view of Smalley et al. (U.S. 2002/0046832) and Shibuta et al. (U.S. 5,908,585).

For the reasons previously cited in reference to Reynolds, Applicant believes that independent claim 1 is patentable over Reynolds, either alone or in combination with the other cited references. Claims 3, 7 and 14-16 are dependent upon claim 1.

4. Claims 3, 7 and 14-16 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Jia et al. (Mat. Sci. Eng. 1999, A271, 395-400) in view of Smalley et al. (U.S. 2002/0046832) and Shibuta et al. (U.S. 5,908,585).

For the reasons previously cited in reference to Jia et al., Applicant believes that independent claim 1 is patentable over Jia et al., either alone or in combination with the other cited references. Claims 3, 7 and 14-16 are dependent upon claim 1.

Claims 19-22 have been allowed.

Claims 6 and 10-11 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant respectfully points out that the Office has presented a rejection of claim 13 in view of Reynolds and again in view of Jia et al., however, the Office has failed to identify where the elements presented in claim 13 exist in the prior art. More specifically, the Office has not presented the step of achieving polymerization by utilizing a method selected from the group consisting of ultraviolet light, thermal heating, and ionizing gamma radiation in either the Reynolds or the Jia et al. reference.

If the Office is not fully persuaded as to the merits of Applicant's position, or if an Examiner's Amendment would place the pending claims in condition for allowance, a telephone call to the undersigned at (727) 507-8558 is requested.

Very respectfully,

SMITH & HOPEN



Dated: January 5, 2006

By: _____
Molly L. Sauter
USPTO Reg. No. 46,457
15950 Bay Vista Drive, Suite 220
Clearwater, FL 33760
(727) 507-8558
Attorneys for Applicant

CERTIFICATE OF FACSIMILE TRANSMISSION
(37 C.F.R. 1.8(a))

I HEREBY CERTIFY that this Amendment A, including Amendments to the Claims and Remarks, is being transmitted by facsimile to the United States Patent and Trademark Office, Art Unit 1751, Attn: Kallambella M. Vijayakumar, (571) 273-8300, on January 5, 2006.

Dated: January 5, 2006



Deborah Preza